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ABSTRACT

An analysis of reading instructional research reveals eight analytic categories for organizing various aspects of instruction. The first three categories describe the rhetorical distinctions that are often made about instruction, providing a background to the analysis of the instruction found in current research. The distinctions in these categories result in four possible modes of instruction: (1) textbook-bound/designed, (2) textbook-bound/responsive, (3) textbook-free/designed, and (4) textbook-free/responsive. However, only the textbook-bound/designed mode of instruction is reflected in the reported research. Categories 4 and 5 describe the global ingredients that are descriptive of the instructional mode. They show that textbook-bound and designed modes of instruction always focus on student response to directed practice and call for organizational behaviors, social management behaviors, and verbal-pedagogical behaviors by teachers. Categories 6 through 8 describe the specific pedagogical behaviors being studied in the reading instructional research. They reveal two approaches that seem to dominate the research: one--spontaneous generation--is based on the belief that the key to learning is implicit in the act of completing the task and that teachers can be most helpful by exposing students to the task in various ways; the second--teacher explanation--assumes that some students will not be sensitive to such implicit cues and that teachers must make explicit for them the processing that undergirds the task. (HOD)

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AN ANALYSIS OF THE INSTRUCTION IN READING INSTRUCTIONAL RESEARCH

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AN ANALYSIS OF THE INSTRUCTION IN READING INSTRUCTIONAL RESEARCH[1]

Gerald G. Duffy and Laura R. Roehler[2]

Researchers of reading have long been interested in the processes of reading and how individuals learn to read. Less emphasis has been placed on instruction and what teachers do to teach reading. Recently, however, a change has occurred. Stimulated by findings from research on teaching and by the needs of practitioners, more and more reading research has focused on instructional issues. For instance, Durkin (1979) has examined the comprehension instruction in elementary classrooms; Calfee and Pointkowski (1981) have looked at decoding instruction; Hansen (1981) has studied the teaching of inferencing; Cohen and Stover (1981) have examined the teaching of comprehension of math story problems; and Carver and Hoffman (1981) have examined computerized teaching of fluency.

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1. This paper was presented at a research session on Reading Instructional Research at the National Reading Conference, Dallas, Texas, December 1981. Much of the thinking for this paper was done while the authors were on sabbatical from Michigan State University during 1980-1981. The writing was done under the auspices of the IRT.

2. Gerald Duffy is a professor of teacher education in the College of Education at Michigan State University and was co-coordinator of the Conceptions of Reading Project in the IRT. Laura Roehler is an associate professor of teacher education in the College of Education, Michigan State University, and was co-coordinator of the Language Arts Project in the IRT. The authors gratefully acknowledge the tangible assistance provided by their colleagues at MSU, particularly Drs. Linda Patriarca, George Sherman, Lee Shulman, and Roy Wesselman.

A particular interest has surfaced regarding the instruction of reading comprehension. For instance, The Center for the Study of Reading, University of Illinois, has committed itself to the study of direct instruction of comprehension (Note 1), and the National Reading Conference, led by researchers such as Patty Anders (University of Arizona), Mark Aulls (McGill University), James Cunningham (University of North Carolina), Michael Kamil (University of Illinois-Chicago), P. David Pearson (University of Illinois), Michael Strange (University of Texas), and Cathy Wilson (University of Iowa), has in the last three years sponsored a continuing study of reading instructional research in comprehension.

For those of us who are concerned about the instructional issues associated with reading comprehension, this interest in instruction is a happy circumstance. We can expect that, as a result of these efforts, we will soon be in a position to inform the practice of teachers and teacher educators regarding effective teaching of reading.

Currently, however, progress toward this goal is slow, partly because researchers of reading instruction, having been less than precise in the use of the term "instruction," are now having trouble defining what it is we are studying. For instance, there is a debate over what Durkin (1979) really meant when she reported that the teachers she observed spent little time instructing comprehension; Hodges (1980) argues that instruction is more than what Durkin said it was, while Heap's (Note 2)

critique of Durkin is based on yet another definition of what instruction is. Such lack of clarity regarding the nature of instruction is also illustrated by comparing Barr's (1981) instructional focus, the view of instruction implicit in the two treatments used by Hansen (1981), the "corrective" model used by Cohen and Stover (1981), the "story map" presented by Beck and McKeown (1981), the modeling espoused by Carnine and Silbert (1979) and the explicative instructional function for which we have argued (Duffy and Roehler, in press). In each case, instruction means something different. Yet all of those cited used the term as if they shared a common definition. This sometimes means that researchers have difficulty interpreting the implications of even the finest research studies, such as the one in which Calfee and Pointkowski (1981) conclude that instruction should be "direct and structured" but fail to specify exactly what that is. While variety in viewpoints about instruction is desirable, not knowing where one person's "instruction" intersects with another's makes it difficult for researchers to talk to each other and for the teachers and teacher educators who are the consumers of the research to know how the findings inform practice. Hence, we need to think rigorously about what is the "instruction" in reading instructional research.

This paper is a first step in that direction. It suggests analytic categories for describing and thinking about instruction, particularly that found in current research of comprehension

teaching. We have no illusions about the long-term utility of this effort. It no doubt will and, indeed, ought to be soon made obsolete by more refined, more elegant, and more descriptive efforts. It does, however, serve as an example of the type of thinking we feel must be done if we are to become more precise in our study of instruction. It is offered here in the hope that it will challenge others to develop a "grammar of instruction"--a description of the components of instruction and their interrelationships.

The Analytic Categories of Instruction

To clarify thinking about the instruction in reading instructional research, we analyzed studies currently being reported and tried to rationally determine what instructional distinctions are being made. The result was eight analytic categories, starting with the broadest distinctions about the meaning of instruction and moving steadily through finer and finer distinctions. Each analytic category is identified with an arabic numeral and includes one or more distinct conceptual types, although we realize that in practice such distinctions are seldom clear and that, indeed, teachers may sometimes deliberately combine types.

Figure 1 provides an overview of the direction the analysis takes. Note that the eight categories are divided into three sub-sets: Categories 1-3 describe the rhetorical distinctions that are often made about instruction, providing a background to

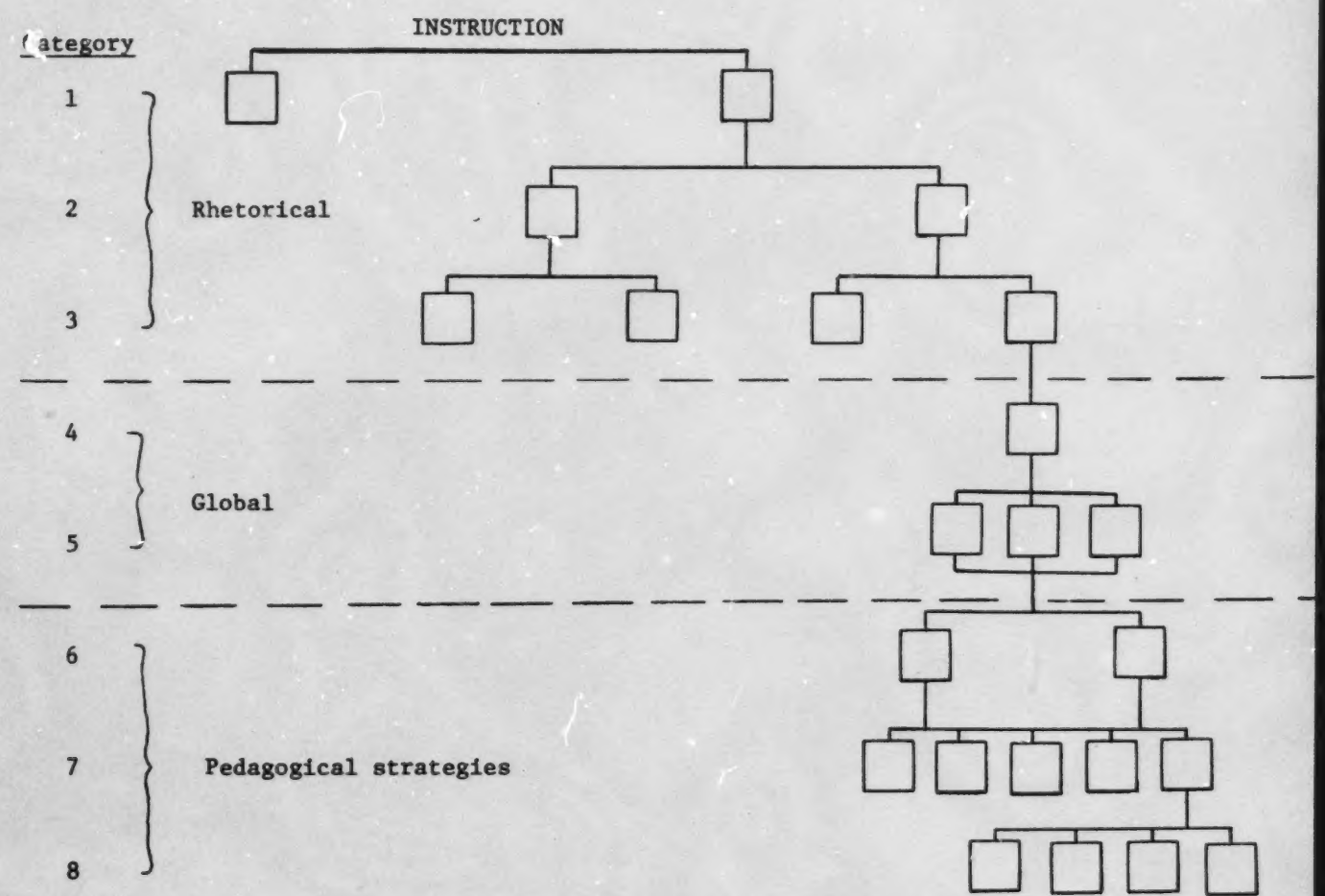

Figure 1. Analytic categories to describe reading instructional research.

the analysis of the instruction found in current instructional research (see Figure 2, page 10); Categories 4 and 5 describe the global ingredients which are descriptive of the instructional mode currently being researched (see Figure 3, page 14); and Categories 6-8 describe the specific pedagogical behaviors being studied in reading instructional research (see Figure 4, page 20). Note also that the analysis progresses to the right in Figure 1, rather than developing in balance. This is because the reading instructional research currently being reported is almost exclusively of the "direct instruction" mode. Because the other modes are discussed but seldom researched, there was no instruction to analyze in these modes.

Categories 1-3: Rhetorical Distinctions

These seldom-researched but much-discussed distinctions focus on broad differentiations about instruction and result in four theoretically-feasible modes of instruction. While only one of these modes is represented in current reading instructional research, all four are important, since many of the debates about the way comprehension should be taught are based on these rhetorical distinctions.

Category 1. The first category is strictly definitional. It makes a distinction between what to teach and how to teach it. The question of "what to teach" is a curriculum issue; its focus is the content to be selected for instruction. Instruction, however,

refers to how one imparts this content to learners. While instruction cannot occur without content, and teaching effectiveness depends both on teaching the right thing and teaching it well, the "what to" and "how to" questions are nevertheless conceptually different. Concerns such as whether we should include more writing in the reading period, or whether we should teach syllables rather than phonograms are problems of "what to teach." Instruction--the "how to"--occurs after such content desicions have been made. Consequently, in analyzing the instruction in reading instructional research, the first distinction is between "the what" and "the how." Instruction refers to the latter.

Category 2. The second category focuses on the source of the materials of instruction, since all reading instruction implies that something must be read. Two conceptual types are possible here (although we remind you again that, in practice, they can be combined). The first conceptual type is "textbook-bound" instruction. Such instruction is based on the assumption that students will read a textbook of one kind or another. The basal textbook is the prevalent example found at the elementary level, although softback programmed materials, instructional kits and even computer assisted instruction are of this conceptual type.

The second conceptual type in this category is "textbook free" reading instruction. Such instruction is based on the assumption that students will not use a textbook; instead, reading materials will be selected and/or created by the students

themselves. Most versions of the language experience approach are typical of this type, as are "individualized reading" approaches that call for the use of trade books.

Category 3. This category focuses on the teacher's instructional role when bringing students together with the materials. This role can be one of two types. In the first, the teacher brings the materials and students together according to the directives of an instructional design (either prescribed or developed by the teacher) which includes a logically developed sequence of both content and instructional activities; in the second, the teacher allows children to explore and experience the materials in an unstructured manner and responds in appropriate ways to the "teachable moments" that arise from such encounters. Rhetorically, this distinction between "designed" and "responsive" instruction is a crucially important one. Designed instruction provides opportunity for students to learn; responsive instruction waits for pupil responses that provide the teacher with the opportunity to teach. Designed instruction expects the teacher to adhere closely to the instructional prescription; responsive instruction expects spontaneous and inventive teacher responses to children's interactions with text. Designed instruction assumes that instruction creates learning outcomes; responsive instruction assumes that instruction facilitates learning outcomes. In short, designed instruction is what most people are talking about when they describe "direct instruction" in reading. It is exemplified by

most of the standard basal text programs and other commercial reading materials found in today's classrooms. Responsive instruction, on the other hand, is more consistent with the practices espoused by "open classroom" advocates. In reading, its ideals are reflected in language experience and individualized reading approaches.

Summary. As seen in Figure 2, the distinctions in the first three categories result in four possible modes of instruction: textbook-bound/designed, textbook-bound/responsive, textbook-free/designed, and textbook-free/responsive. However, while such instructional diversity is theoretically possible, only the textbook-bound/designed mode of instruction is reflected in the reading instructional research currently being reported. Consequently, we now pursue our analysis in that direction.

Categories 4 and 5: Global Ingredients

When examining the reading instructional research currently being reported, two characteristics are apparent. First, as noted above, nearly all the studies reflect the textbook-bound/designed mode of instruction. Second, within this mode, certain instructional characteristics prevail. These characteristics of textbook-bound/designed instruction are discusses in Categories 4 and 5.

Category 4. The fourth analytic category for describing and thinking about instruction is the only one for which there is no apparent disagreement. Regardless of one's instructional

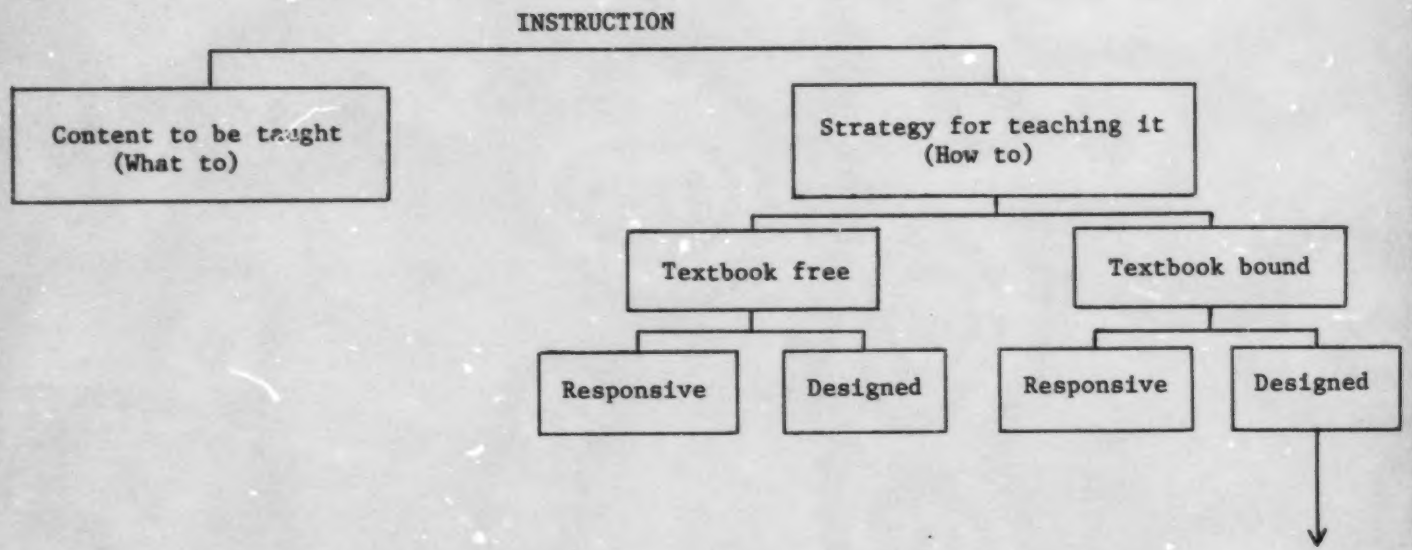

Figure 2. Rhetorical distinctions.

position (especially within the textbook-bound and designed mode), there is agreement that instruction must solicit a response from students and that such responses are best obtained in a directed practice situation using the textbook and/or its associated instructional materials (such as the workbook). In short, practice is a necessary part of instruction. Even advocates of textbook-free and responsive modes of reading instruction agree that practice is important (although they prefer to call it "experiences with text" or "encounters with print"). Consequently, whatever other difficulties there may be in describing the instruction in reading instructional research, there is no doubt about whether practice will be part of it. It will be.

Category 5. The complexity of instruction is revealed in the fact that, while practice is central to instruction, a variety of teacher instructional behavior is expected during practice. The research includes three distinct types.

We label the first "organizational behaviors." These are the instructional behaviors teachers use to organize their classroom. They include the scheduling and management behaviors associated with allocated instructional time and engaged time on task, the grouping behaviors associated with placing pupils in appropriate reading groups and the pacing behaviors that, to a large degree, govern the amount of content covered. Many of the findings from research

on teaching, especially the process-product studies, have focused attention on the importance of such organizational behaviors. In reading, Barr's (Note 3) emphasis on the time resources allocated to reading groups gives priority to the teacher's function as an organizer and dispenser of instructional time.

The second type of instructional behavior is the teacher's socio-cultural instructional behaviors. Here, the focus becomes the teacher's role in forging working relationships with students, in maintaining activity flow, in resolving various role conflicts and in establishing and maintaining the classroom social system. The work of McDermott (1977), Mehan (1979), Doyle (1979), Au and Mason (1981), and others are particularly relevant here. The common focus of this teacher instructional behavior is the teacher-pupil interaction and its relationship to the social organization in the classroom. The assumption is that the teacher's instructional behavior must solicit student responses within an environment governed by social and cultural conventions.

The third type of teacher instructional behavior is labeled "verbal-pedagogical." This type of behavior is implicit in nearly all discussions of instruction because it is universally assumed that teachers will say something to students when soliciting responses during practice. Further, it is assumed that what teachers say is pedagogically based--that is, that teacher's verbal interactions with students embody pedagogical strategies that increase the chances that the student will respond

successfully. The various kinds of verbal-pedagogical strategies found in current reading instructional research are discussed in Category 7.

Summary. As seen in Figure 3, the textbook-bound and designed mode of instructional always focus on student response to directed practice and call for organizational behaviors, social management behaviors, and verbal-pedagogical behaviors by teachers. Since such specific verbal-pedagogical teacher behaviors are the topic of much of the reading instructional research, they are the focus of categories 6-8.

Categories 6-8: Specific Pedagogical Behaviors

As noted in Category 5 above, effective teaching requires at least three kinds of teacher instructional behavior since (1) classrooms must be organized, (2) instruction must be conducted within a social system and (3) teachers must say helpful things to students. It is the specifics of the latter set of teacher behaviors that now becomes our focus.

Category 6. While it is generally agreed that teachers ought to say helpful things to students, the source of such instructional comments takes two forms. The first (and most prevalent) is typified by the standard basal textbook in which the design prescribes both the curricular sequence and the sequence of instructional activities but stops short of specifying the exact words the teacher must use when presenting

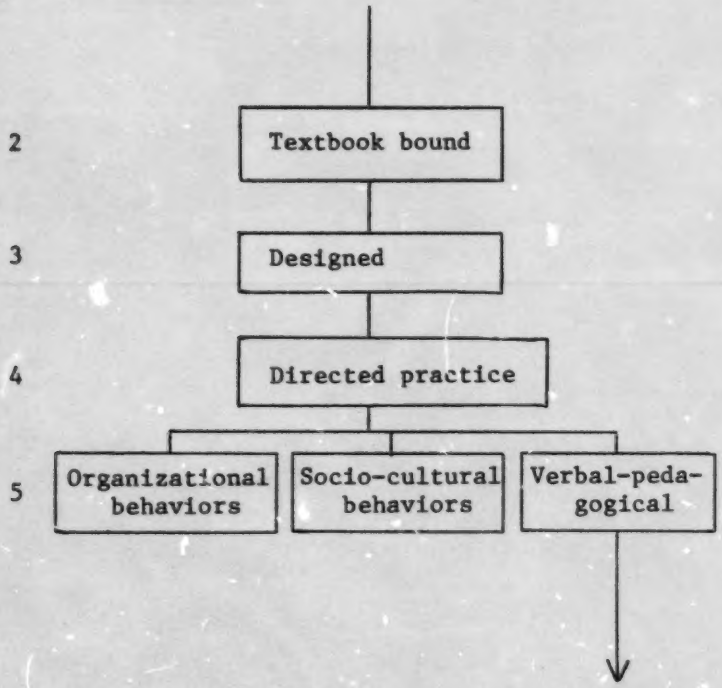

Figure 3. Global ingredients.

instruction. The second, like the first, prescribes a design for curricular sequence and for instructional activities; in addition, however, it provides a script that teachers are expected to follow verbatim when presenting instruction (e.g., DISTAR, a popular reading program). Thus, an analysis of the instruction in reading instructional research must include instructional communications, whether they are to be created and articulated by teachers themselves or created and scripted for teachers by "master developers" (Rosenshine, Note 4).

Category 7. Examination of current reading instructional research (both scripted and non-scripted) indicates that there are five "verbal-pedagogical" instructional behaviors being studied: (1) setting expectancies, (2) giving directions, (3) monitoring with corrective feedback, (4) modeling, and (5) explaining. At first glance, these appear to be five distinctly different types. However, as we have argued elsewhere (Duffy and Roehler, in press), this apparently diverse set of instructional behaviors is really an illusion. When examined in terms of the assumptions upon which they are based, there are only two distinct conceptual types of verbal-pedagogical behavior.

The first is based on the assumption that if students are exposed to a task, they will spontaneously develop an intuitive understanding of how to do it. This type (which we call "spontaneous generation") includes behaviors 1-4 above. Let's

examine the first one: setting expectancies. The pedagogical strategy is that teachers can help children learn by establishing an instructional environment in which learners are expected to use the desired outcome. A recent research example of this verbal-pedagogical instructional behavior is Hansen's (1981) question strategy, in which she asked only inference questions of one group on the assumption that, by posing only such questions, the student is encouraged to learn how to answer them. Pearson (Note 5) explains that this type of pedagogical strategy may work because "the pattern of questions sinks in." In short, students will respond to the teacher's expectancy by spontaneously developing an understanding of how to do the cognitive processing required.

A similar belief is reflected in the second verbal-pedagogical behavior, in which the teacher gives procedural directions for doing the directed practice. The pedagogical strategy is that the student, if given clear directions for doing the task, will learn how to do it. A recent example in reading instructional research is the directions given to the subjects in the Carver and Hoffman (1981) study of computer-assisted instruction of fluency. Again, the expectation is that the directions and the subsequent directed practice will spontaneously produce in the student an understanding of how to process the desired outcome.

The third example of teacher "verbal-pedagogical" instructional behavior is monitoring with corrective feedback. Here, the teacher

monitors pupil responses to practice and supplies correctives when errors are made. This version of verbal-pedagogical behavior is cited by Cohen and Stover (1981) in their study of comprehension of math story problems, by Hodges (1980) in her critique of Durkin and by Heap (Note 2) in his critique of Durkin. It is also the type of instruction that Allington (1980) expects when he studies teacher interruption behavior and that Hoffman, O'Neal and Baker (Note 6) expect when studying teacher feedback to miscues. The pedagogical strategy is that teachers can help children learn if, after errors are made, corrections are provided. While much depends here upon how corrections are provided (with the scarcity of such descriptive information being one of the major frustrations in understanding instruction), the assumption frequently seems to be that, if one is corrected enough times, the understanding of how to do the task will spontaneously appear.

The final example of "spontaneous generation" is modeling. Here, the teacher demonstrates the desired response for pupils prior to directed practice. The pedagogical strategy is that the teacher can help the student learn by having the student follow his/her example. Such modeling is emphasized in Carnine and Silbert (1979) and in Hansen's (1981) strategy treatment in which she modeled the inferencing response using a weaving analogy. Such modeling, however, demonstrates only the response; it neither demonstrates the cognitive processing employed nor

illuminates how one arrives at the response. Like the other "spontaneous generation" examples, the assumption is that both the desired response and an intuitive understanding of how to do the required processing will be achieved spontaneously by virtue of repeated exposure to the task as it is modeled and responded to during directed practice.

Only one verbal-pedagogical teacher behavior stands in contrast to "spontaneous generation." It is teacher explanation behavior. Based on the assumption that teachers should verbally explain to students not only what the correct response is but also the processing involved, this type of verbal-pedagogical teacher behavior focuses on (1) identifying the cognitive processing that readers use when successfully completing the task and (2) explicitly explaining to students how to do such processing when reading. Such verbal-pedagogical behavior reflects a belief that, because language is a system of conventions and principles that we all share (albeit sometimes intuitively and unconsciously), students who do not spontaneously grasp these conventions and principles should be made aware of them through explicit explanation. Examples of various approaches to teacher explanation behavior follow.

Category 8. Although most of the instruction in reading instructional research reflects the "spontaneous generation" type of verbal-pedagogical behavior, recently, this situation has changed, and three examples of teacher explanation can now be provided.

The work of Brown and her colleagues (1981) at the Center for the Study of Reading at the University of Illinois has been the most influential in stimulating interest in teacher explanation. They have conducted research of instruction employing metacognitive strategies. Students are made consciously aware of their own mental processing so that they can make sense out of the task and monitor their own thinking. As Brown (1976) states, it is a process of "externalizing an internal mental event." The processing is deliberately and explicitly brought to the surface in an attempt to make students consciously aware of how they learn and how they know they know. It is startingly different from "spontaneous generation" behavior because it does not assume that all children learn as a result of repeated exposure to the task but, rather, that some profit from explanations that make explicit the processes of reading and thinking.

Graves (Note 7), working on the teaching of vocabulary meaning at the University of Minnesota, also emphasizes teacher explanation behavior. When teaching prefixes, for instance, he emphasizes the importance of bringing to awareness the thinking processes the student uses when dealing with an unknown prefixed word. He accomplishes this by making students conscious of both the facts about prefixes (the conventions and principles that govern their use) and the strategies for using prefixes (the mental processing one uses when unlocking prefixed words). He uses rehearsals as a means for making the thinking process

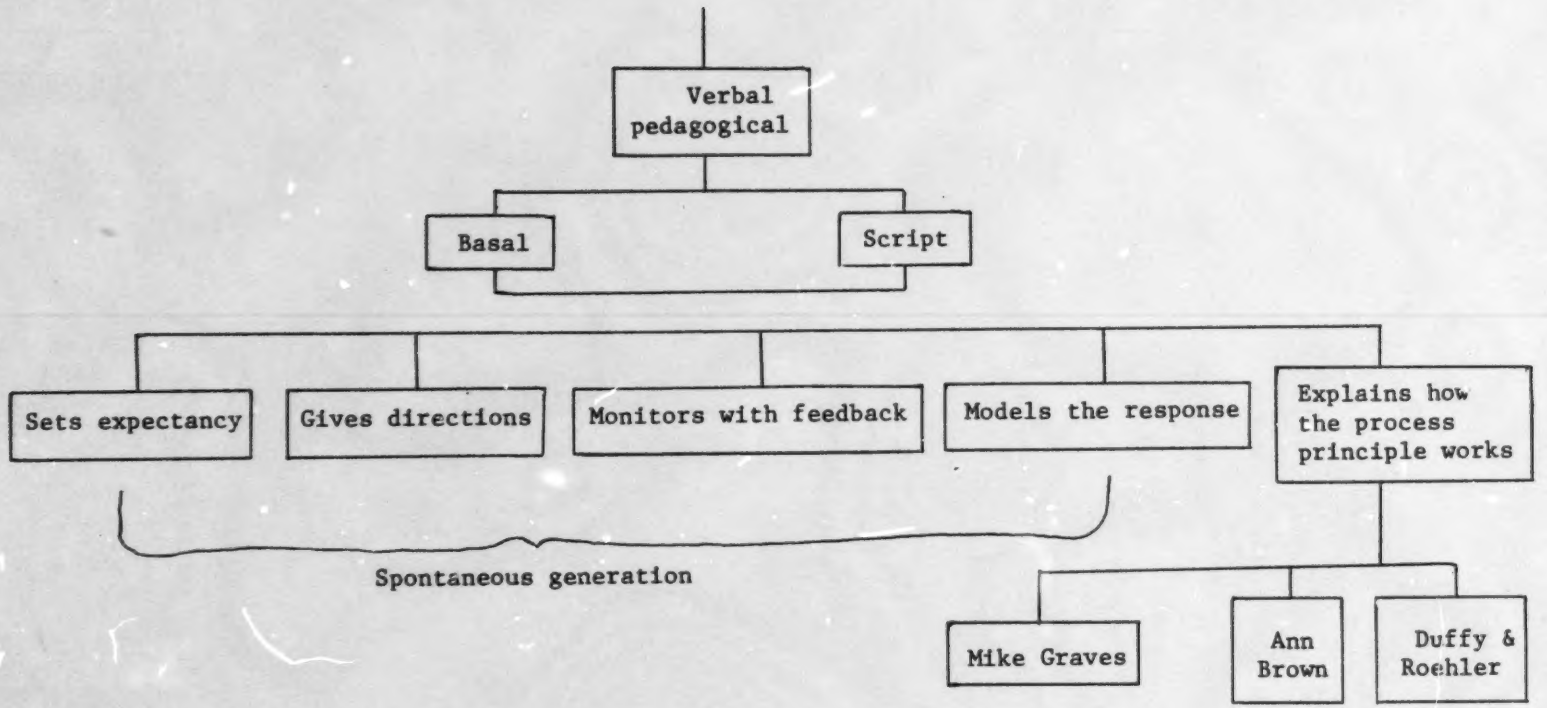

Figure 4. Pedagogical strategies.

explicit, thereby going beyond simple demonstration or other forms of "spontaneous generation."

We, too, are doing pilot work on a kind of teacher explanation behavior. Working within the framework of a teacher's daily classroom practice, we provide four patterns to be used immediately preceding directed comprehension practice. When taken together, these patterns constitute a teacher explanation. In the first pattern, the teacher explicitly states the purpose of the lesson, why it is important and the convention or principle to be employed; in the second, he/she models the thinking involved in completing the task with the intention of externalizing the internal processes employed; in the third, he/she provides students with a series of assisted steps that are gradually reduced until the child can do the task alone; and, finally, the teacher checks to make sure that the students are consciously aware of what has been taught, why it is useful and the secret to being able to do it successfully. The intent is not only to teach students to get the right answer but also to make them consciously aware of what they are doing, how they are doing it and how they know they have done it successfully.

Summary. Given that the teacher's ability to say helpful things to students is an important instructional behavior, two approaches seem to prevail. The one that dominates reading instructional research--labeled here as "spontaneous generation"--is based on the belief that the key to learning is implicit in the

act of completing the task and that, therefore, teachers can be most helpful by exposing students to the task in various ways. The second--teacher explanation--assumes that some students will not be sensitive to such implicit cues and that teachers must make explicit for them the processing that undergirds the task. Clearly, these are two conceptually different ways to think about reading comprehension instruction.

Conclusion

It is difficult even in the best of times to design rigorous research studies, to communicate with colleagues about such work, and to report findings in ways that inform practice. When the object of study is as complex as instruction, the problems sometimes become nightmarish, mis-communication becomes common, and progress is slowed.

In such situations, it is often helpful to analyze the phenomenon in terms of categories and to examine the distinctions between and within categories. Our analysis of instruction suggests three sub-sets of such categories: first, distinctions about the definition of instruction, the source of reading materials, and the teacher's role in bringing students and materials together; second, distinctions about the role of practice and the teacher's instructional behaviors during practice; and, third, the teacher's verbal-pedagogical strategies for helping students learn. By thinking in terms of these categories, we have determined how our

own research on teacher explanation behavior fits in with other current studies of reading instruction. This insight alone has made this analysis worthwhile.

However, three broader benefits exist. First, this analysis reveals the totality of the reading instruction phenomenon. Up to now, research efforts in this area have been much like the story about the blind men and the elephant. Each researcher has researched his/her own version of instruction (the ear or the trunk or the leg) and each described instruction in terms of this limited perception. In contrast, this analysis by categories provides a glimpse of the instructional gestalt, and helps us place individual studies within this gestalt.

Second, this analysis helps us know what we are getting smarter about. For instance, we are getting smarter about textbook-bound and designed reading instruction (direct instruction), but we are not learning much about other modes of instruction. Within the textbook-bound and designed mode, we know much about teacher behaviors for organizing instruction and for operating within the classroom social system, but we know less about the teacher's verbal-pedagogical behavior.

Finally, this analysis helps us understand related issues. The debate about instructional decision-making in reading is illustrative (Borko, Shavelson, & Stern, 1981; Duffy, in press).

From the perspective of the analysis reported here, the issue is not whether teachers make instructional decisions or not; instead, it is that one's expectations about what constitutes instructional decision-making varies greatly depending upon one's referrent for "instruction." For instance, teachers employing textbook-bound and designed modes of instruction are clearly required to do a different kind of decision-making than teachers employing a textbook-free and reactive mode of instruction. Similarly, teachers following a script do a different kind of decision-making than teachers using a standard basal. Finally, teachers whose verbal-pedagogical behavior is of the "spontaneous generation" type make different types of instructional decisions than teachers whose instruction attempts to provide metacognitive explanation.

There are multiple benefits of such conceptual analyses of the instruction in reading instructional research. In a word, however, the benefit is clarity of communication. Researchers are better able to talk to each other about their work and teachers and teacher educators understand better how the research informs practice.

The task is not done, however. If researchers are to become truly precise in the design of reading instructional research, we must ultimately possess a "grammar of instruction." We hope this paper is a step toward achieving this goal.

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